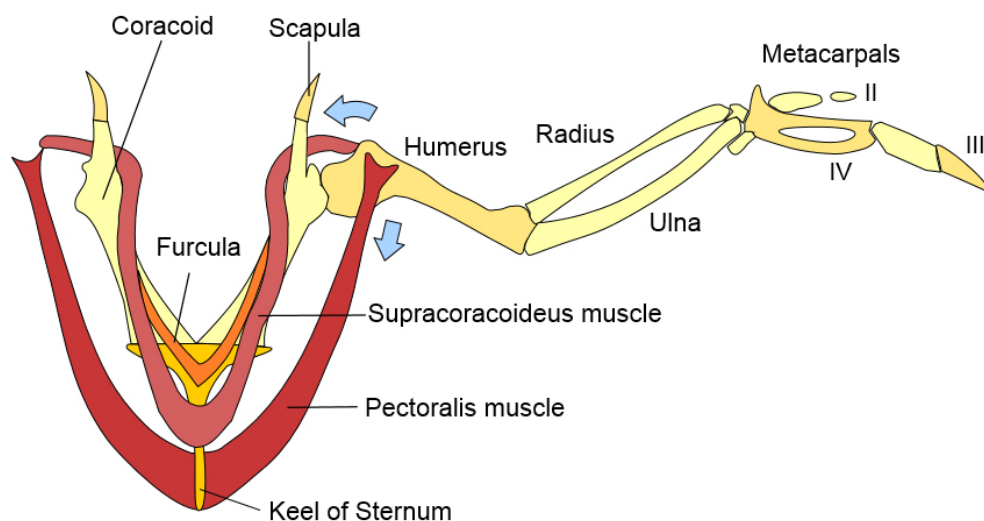


# In honor of turkeys

by John Morton



*Simplified anatomy of the structural components used in bird flight. If you prefer eating white meat at Thanksgiving, you're eating the turkey's pectoralis and supracoracoideus muscles (credit: [Wikipedia](#)).*

Did you know that you were not alone yesterday in eating turkey? According to the National Turkey Federation, 95 percent of Americans eat turkey on Thanksgiving, consuming 675 million pounds from 45 million birds. It certainly goes a long way towards explaining that gastric discomfort we experienced last night. Here are some facts you might not know about the biology and history of turkeys.

Carl Linnaeus, despite being the father of the modern taxonomic naming system, incorrectly named wild turkeys *Meleagris gallopavo* because he thought they were related to the African guineafowl (*Numida meleagris*).

Our domestic turkey did NOT originate from North American wild turkeys that the Pilgrims ate at their first Thanksgiving. The truly amazing story is that the Aztecs apparently domesticated the South Mexican turkey (now a critically endangered subspecies) over 2,000 years ago. Spanish conquistadors took it back to southern Europe and the Middle East in the mid sixteenth century, eventually to be introduced to the rest of Europe by traders from Turkey (one version of how it got named).

By 1601, turkeys were so common in England that Shakespeare wrote “contemplation makes a rare turkey-cock of him: how he jets under his advanced plumes” in describing someone in the comedy *Twelfth Night*. The now fully domesticated turkey circled back to the New World when English and Dutch colonists brought them to Virginia in the early seventeenth century.

Turkeys were originally domesticated for their plumage, not their meat. While Aztecs did use turkeys for meat and eggs, it was their feathers that were in demand for decoration. It wasn't until the 1900s that turkeys were selectively bred for meat production, specifically for big breasts and thighs. By the late 1930s, mature males reached 40 pounds with females weighing half that. The breast muscles are so enlarged in commercially-bred birds that tom turkeys are incapable of getting close enough to a hen to mate—they have to be bred by artificial insemination! Charles Darwin would roll over in his grave if he knew about this.

Breast muscles actually include several muscles, but the two that get the most attention are the pec-

toralis major and supracoracoideus. The pectoralis is what is typically called the breast and the supracoracoideus is the equivalent of the “chicken tenders” in turkey. In most flight-capable birds, the pectorals make up 15 to 25 percent of total body weight, but it’s commonly over 30 percent of commercially-bred turkeys.

These two muscles make flight possible. The pectoralis stretches between the wing’s humerus and keel, and is responsible for the downstroke. The supracoracoideus lies under the pectoralis and, attaching to the keel and upper side of the humerus, is responsible for the upstroke through a “rope and pulley” arrangement (see figure).

As you might imagine, it’s much easier to pull a wing up since a bird is essentially falling during flight, and so the supracoracoideus is much smaller than the pectoralis. In most songbirds, say orange-crowned warblers or gray jays that are common here on the Kenai Peninsula, the weight of the supracoracoideus is 20 percent of the pectoralis. I have to confess I’ve been waiting since I first studied ornithology in 1978 to use this factoid.

In contrast, the supracoracoideus of hummingbirds is 50 percent of their pectoralis. This beefed-up supracoracoideus is essentially what allows hummingbirds to not only hover, but actually fly backwards!

The wishbone (or furcular) is simply the fused collar bones of the turkey. It acts like a spring to maintain the symmetry of wing beats as it braces the shoulders.

And why do turkeys have white and dark meat? It has to do with myoglobin. Avian myoglobin is similar to mammalian hemoglobin except that the latter

transports oxygen in the blood while the former transports and stores oxygen in muscles—and the more myoglobin you have, the darker the meat. Well-oxygenated muscle is needed for endurance, and so migratory waterfowl have dark breast meat. In contrast, most game birds including domesticated turkeys and chickens, which don’t typically fly far, have white breast meat but dark meat in their legs as they spend a lot more time running around. In fact, commercially-bred turkeys can’t fly.

Not only does white and dark meat taste differently, but they cook at different temperatures. White meat is best at 155 degrees whereas dark meat is best at 180 degrees. So consider covering the breast with an ice pack while the rest of the bird comes to room temperature before cooking.

Lastly, many people know that Benjamin Franklin thought the wild turkey should be our national bird instead of the bald eagle. But you probably didn’t know that in a letter to his daughter, Sarah, he wrote “For in Truth the Turkey is in Comparison a much more respectable Bird, and withal a true original Native of America. He is besides, though a little vain & silly, a Bird of Courage, and would not hesitate to attack a Grenadier of the British Guards who should presume to invade his Farm Yard with a red Coat on.” Ben would also roll over in his grave if he discovered that the commercial version of this noble bird no longer flies or even reproduces on its own.

*Dr. John Morton is the supervisory biologist at Kenai National Wildlife Refuge. Find more information at <http://www.fws.gov/refuge/kenai/> or <http://www.facebook.com/kenainationalwildliferefuge>.*